

Book of Abstracts

Innovation in Mediterranean Traditional Foods: Novel Products and Processes

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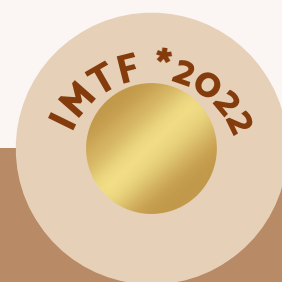
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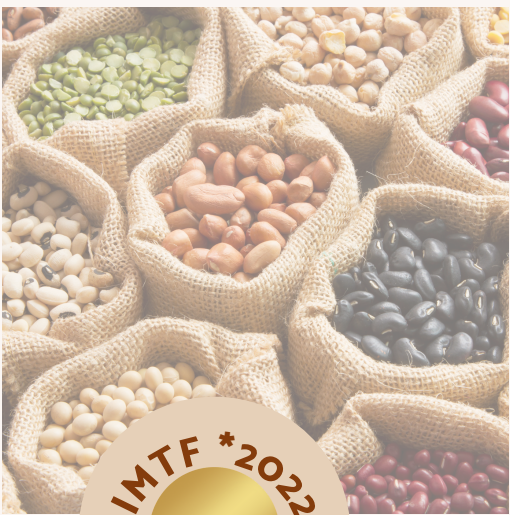
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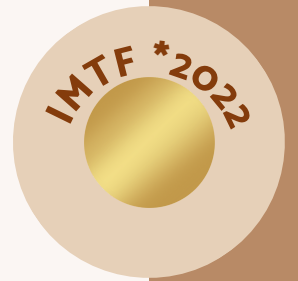
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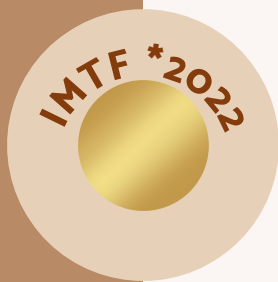






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Unsupervised exploratory analyses as a raw material selection tool to develop innovative food products

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The LOCALNUTLEG project aims to valorise local Mediterranean nuts and legumes by developing innovative plant-based food products. Thus, one of its priorities is to obtain a catalogue with the complete nutritional and biochemical characterisation of the chosen raw materials, which will facilitate a better selection. In this sense, the work presented at this congress aimed to determine the nutritional characterisation and the individual composition of fatty acids and sugars of 6 species of legumes and 19 different varieties. Their centesimal composition was obtained by AOAC official procedures, while soluble sugars and fatty acids were determined by HPLC-RI and GC-FID, respectively. A comparative study of the nutritional profiles of each variety was carried out through two unsupervised exploratory analyses, principal component analysis (PCA) and hierarchical cluster analysis (HCA). The PCA revealed that within all species of the Leguminosae family, all chickpea varieties studied (*Cicer ariteinum*) were associated with high amounts of fibre, energy, and fat. Carob (*Ceratonia siliqua*) was correlated with high concentration of carbohydrates, and all identified free sugars, except for raffinose. All other species and varieties studied were associated with high protein concentrations, a characteristic feature of Fabaceae. Similarly, to the PCA, HCA analysis using the variables from nutritional composition classified the species studied into three large groups. Chickpea varieties were compiled into one large group, the carob into another, and the remaining species and varieties were relegated to the third group. Therefore, depending on the type of new food to develop, one could choose carob, to produce food products rich in carbohydrates and sugars, chickpea to obtain a high calorie, fat, and fibre product, or any other species for a high protein product. In conclusion, these statistical techniques can be successfully used to assist in the identification of the best raw material to create new plant-based food products.

Keywords: Legume; PCA; HCA; multivariate statistical techniques; chemometrics.

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